

REMARKS

Status of the Application

Claims 1-11 and 13-45 were pending. The Office Action rejected claims 1-11 and 13-45. By way of this amendment, claims 1, 2, 15, 19, 22, 23 and 41 are amended, and claims 13, 16, 18, 20, 21, 26, 42, 44 and 45 are canceled. Additionally, new claims 46 and 47 are added. Thus, claims 1-11, 15, 17, 19, 22-25, 27-41, 43, 46 and 47 are now pending.

Interview Summary Record

Applicants thank the Examiner for the courtesy of the telephone interview conducted on August 3, 2009 between Ex. DSouza and the undersigned. Claims 1 and 13, and U.S. Patent Application Pub. No. 2004/0052236 (hereinafter "Hwang"), U.S. Patent Application Pub. No. 2003/0104808 (hereinafter "Foschini"), U.S. Patent No. 6,647,067 (hereinafter Hjelm), and U.S. Patent Application Pub. No. 2004/0030979 (hereinafter "Shany") were discussed. Applicants argued that the Office Action failed to establish that there is a valid reason for combining Hwang/Foschini with Hjelm. For example, Hjelm describes a technique for mitigating cross-talk interference in a wired OFDM system. On the other hand, Hwang and Foschini relate to wireless systems that do not employ OFDM and therefore do not experience the cross-talk described in Hjelm. Moreover, the combination of Hwang and Foschini set forth in the office action is allegedly for canceling interference caused by a common channel, whereas the system of Hjelm does not appear to utilize common channels. No agreement was reached.

Equation 3, p. 7, and the equation at the top of p. 8 in specification of the present application were also discussed, and the application of Shany in the rejection of claim 13, which recited "performing a modulo lattice operation." It was agreed that the inclusion of these equations in claim 1 would overcome the current rejections of claims 1 and 13.

New Claims

Claims 46 and 47 are added. Support for new claims 46 and 47 may be found in the specification at p. 8, lines 4-14, for example.

Rejections under 35 U.S.C. §103

Claims 1-11 and 13-45 were rejected under 35 U.S.C. §103. Applicants respectfully traverse the rejections at least because the Office Action failed to establish that the alleged combinations of references teaches or suggests all the elements of each of claims 1-11 and 13-43, and/or that the Office Action failed to establish a valid reason for combining the references. Nevertheless, independent claims 1, 15, 19, 22 and 41 have been amended in an effort to expedite prosecution. Applicants respectfully reserve the right to pursue previous versions of the claims, including the original claims, in a continuation application.

With respect to claims 27-40, Applicants respectfully maintain that the rejections should be withdrawn.

Claims 1-3, 6, 7, 9-11, 14, 22-25, 41 and 43

Claims 1-3, 6, 7, 9-11, 14, 22-25, 41 and 43 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Hwang in view of Foschini, and in further view of Hjelm. Reconsideration is respectfully requested.

With respect to claim 1, it is generally directed to a method for generating a transmit signal for a specific user device. Claim 1 now recites, *inter alia*, “determining a common channel interference component using said first data and said channel information for said common channel; determining a difference between said common channel interference component and said second data; performing a modulo lattice operation on said difference; and scaling a result of the modulo lattice operation using a power value associated with the specific user device.” The element “performing a modulo lattice operation on said difference” is supported in the specification by Equation 3, p. 7, for example. The element “scaling a result of the modulo lattice operation using a power value associated with the specific user device” is supported in the specification by Equation 3, p. 16, and lines 1-14 of p. 8, for example.

Additionally, claim 13 which depended from claim 1 and is now canceled, recited “wherein: generating a transmit signal includes performing a modulo lattice operation.” Claim

13 was rejected as allegedly being obvious over Hwang in view of Foschini and Hjelm, and in further view of Shany.

None of Hwang, Foschini, Hjelm, and Shany discloses or suggests at least the above-mentioned combination of elements.

Claims 2, 3, 6, 7, 9-11 and 14 depend from claim 1. At least for the same reasons as discussed above with respect to claim 1, Applicants respectfully request reconsideration.

Applicants respectfully request reconsideration of claims 22-25, 41 and 43 at least for reasons similar to those discussed above with respect to claim 1.

Claims 27-32

Claims 27-32 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over Hwang and Foschini, in view of U.S. Patent No. 5,956,332 (hereinafter “Rasanen”), and in further view of Hjelm. Applicants respectfully traverse the rejection because the Office Action failed to establish that the alleged combination of Hwang, Foschini, Rasanen, and Hjelm teaches or suggests all the elements of each of claims 27-32.

Claim 27 recites “generating transmit signals to be transmitted to user devices associated with said first class without using dirty paper techniques; and generating transmit signals to be transmitted to user devices associated with said second class using said first data, said second data, and said channel information.” The Office Action failed to establish that the alleged combination of Hwang, Foschini and Rasanen teaches or suggests these elements in combination with the other elements of claim 27.

Hwang generally describes a joint detection technique implemented at a receiver. Hwang does not disclose or suggest generating transmit signals differently for first and second classes of devices generally, and in particular, does not disclose or suggest “generating transmit signals to be transmitted to user devices associated with said first class without using dirty paper

techniques; and generating transmit signals to be transmitted to user devices associated with said second class using said first data, said second data, and said channel information.”

Foschini, on the other hand, describes using dirty paper techniques in connection with transmissions from a base station to mobile devices. *See Foschini* at pars. 0040-0045. But Foschini does not disclose or suggest generating transmit signals differently for first and second classes of devices generally, and in particular, does not disclose or suggest “generating transmit signals to be transmitted to user devices associated with said first class without using dirty paper techniques; and generating transmit signals to be transmitted to user devices associated with said second class using said first data, said second data, and said channel information.”

Rasanen describes a technique for transmitting data between two stations over multiple channels in parallel. Rasanen also does not disclose or suggest generating transmit signals differently for first and second classes of devices generally, and in particular, does not disclose or suggest “generating transmit signals to be transmitted to user devices associated with said first class without using dirty paper techniques; and generating transmit signals to be transmitted to user devices associated with said second class using said first data, said second data, and said channel information.”

Hjelm also fails to disclose or suggest the above-mentioned elements of claim 27.

Because none of the applied references disclose or suggest at least the above-identified elements, the Office Action failed to establish a prima facie case of obviousness of claim 27.

At least for the same reasons as those discussed above with respect to claim 27, the Office Action failed to establish a prima facie case of obviousness of claims 28-32.

Claims 15-17, 19, 20 and 35-37

Claims 15-17, 19, 20 and 35-37 were rejected under 35 U.S.C. §103 as allegedly being unpatentable over U.S. Patent Application Pub. No. 2004/0028121 (hereinafter “Fitton”) in view of Foschini, and in further view of Hjelm.

Claim 15 is generally directed to an apparatus for generating a transmit signal to be transmitted to a remote user device and recites, *inter alia*, “a common channel interference unit to determine a common channel interference component associated with a remote user device using known common channel transmit data and corresponding channel information; and a transmit signal generator to generate a transmit signal to be transmitted to said remote user device via a dedicated channel, said transmit signal generator using said common channel interference component and dedicated data to generate said transmit signal.” Additionally, claim 15 now recites “wherein said transmit signal generator includes: a subtractor to generate a difference between said common channel interference component and said dedicated data, a modulo lattice unit to perform a modulo lattice operation on said difference; and a multiplier to multiply an output of the modulo lattice unit by a scaling value generated based a power value associated with the remote user device.”

None of Fitton, Foschini, Hjelm, and Shany discloses or suggests at least the above-mentioned combination of elements.

Claim 17 depends from claim 15. At least for the same reasons as discussed above with respect to claim 15, Applicants respectfully request reconsideration.

At least for reasons similar to those discussed above with respect to claim 15, Applicants respectfully request reconsideration of the rejection of claim 19.

Claim 8

Claim 8 was rejected under 35 U.S.C. §103 as being unpatentable over Hwang, Foschini, and Hjelm in view of U.S. Patent Application Pub. No. 2006/0166690 (hereinafter “Nishio”). Applicants respectfully request reconsideration and withdrawal of the rejection.

Claim 8 depends from claim 1 and therefore includes all of the elements of claim 1. Nishio does not disclose or suggest the element of claim 1 that are not taught or suggested by Hwang, Foschini and Hjelm. At least for these reasons, claim 8 is allowable over Hwang, Foschini, Hjelm and Nishio.

Claims 18, 21, 39 and 42

Claims 18, 21, 39 and 42 were rejected under 35 U.S.C. §103 as being unpatentable over Fitton in view of Shany and Foschini, and in further view of Hjelm. Claims 18, 21 and 42 are canceled. Applicants respectfully request reconsideration of claim 39

Claim 39 depends from claim 35. Fitton, Shany, Foschini and Hjelm do not teach or suggest every element of claim 39 at least for the same reasons as discussed above with respect to claim 35.

Claims 4, 5, 31 and 32

Claims 4, 5, 31 and 32 were rejected under 35 U.S.C. §103 as being unpatentable over Hwang, Foschini, Hjelm, and Fitton.

With respect to claims 4 and 5, these claims depend from claim 1. As discussed above, Hwang, Foschini, and Hjelm do not teach or suggest all of the elements of claim 1. Similarly, Fitton also does not teach or suggest the elements that Hwang, Foschini and Hjelm fail to disclose or suggest. Applicants respectfully request reconsideration and withdrawal of the rejection.

With respect to claims 31 and 32, these claims depend from claim 27. As discussed above, the Office Action failed to establish that Hwang, Foschini, Rasanen, and Hjelm teaches or suggests all of the elements of claim 27. Also, the Office Action failed to establish that Fitton teaches or suggests the elements that Hwang, Foschini, Rasanen, and Hjelm fail to disclose or suggest. At least for this reason, Applicants respectfully traverse the rejection.

Claim 33

Claim 33 was rejected under 35 U.S.C. §103 as being unpatentable over Hwang in view of U.S. Patent Application Pub. No. 2004/0101034 (hereinafter “Ben-David”). Applicants respectfully traverse the rejection.

Claim 33 depends from claim 27 and therefore recite “generating transmit signals to be transmitted to user devices associated with said first class without using dirty paper techniques; and generating transmit signals to be transmitted to user devices associated with said second class using said first data, said second data, and said channel information.” As discussed above, the Office Action failed to establish that Hwang teaches or suggests at least these elements. Also, the Office Action failed to establish that Ben-David teaches or suggests at least all of these elements. At least because the Office Action failed to establish that the alleged combination of Hwang and Ben-David teaches or suggests every element of each of claim 33, the Office Action did not establish a prima facie case of obviousness.

Claim 34

Claim 34 was rejected under 35 U.S.C. §103 as being unpatentable over Hwang in view of Shany. Applicants respectfully traverse the rejection.

Claim 34 depends from claim 27 and therefore recite “generating transmit signals to be transmitted to user devices associated with said first class without using dirty paper techniques; and generating transmit signals to be transmitted to user devices associated with said second class using said first data, said second data, and said channel information.” As discussed above, the Office Action failed to establish that Hwang teaches or suggests at least these

elements. Also, the Office Action failed to establish that Shany teaches or suggests at least all of these elements. At least because the Office Action failed to establish that the alleged combination of Hwang and Shany teaches or suggests every element of each of claim 34, the Office Action did not establish a prima facie case of obviousness.

Claim 40

Claim 40 was rejected under 35 U.S.C. §103 as being unpatentable over Fitton in view of Ben-David). Applicants respectfully traverse the rejection.

Claim 40 depends from claim 35 and therefore recites “an interference unit to collect data to be delivered to user devices within a first class via corresponding dedicated channels and to use the collected data to generate a composite interference signal; and a transmit signal generator to generate transmit signals to be transmitted to user devices associated with said first class without using dirty paper techniques, and to generate transmit signals to be transmitted to user devices within a second class via corresponding dedicated channels using said composite interference signal, dedicated data to be delivered to said user devices within said second class, and channel information associated with said user devices within said second class.” As discussed above, the Office Action failed to establish that Fitton teaches or suggests at least all of these elements. Also, the Office Action failed to establish that Ben-David teaches or suggests at least all of these elements. At least because the Office Action failed to establish that the alleged combination of Fitton and Ben-David teaches or suggests every element of each of claim 40, the Office Action did not establish a prima facie case of obviousness.

Conclusion

At least in view of the above, Applicants believe the pending application is in condition for allowance.

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Respectfully submitted,

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